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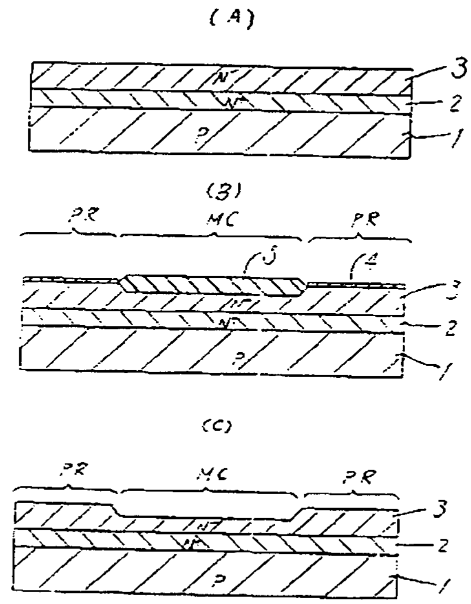

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APPLICANT : HITACHI LTD;

INVENTOR : IWABUCHI MASATO;

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TITLE : SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

ABSTRACT : PURPOSE: To improve operation speed in a semiconductor integrated circuit comprising bipolar transistors, by differentiating the thicknesses of an epitaxial layer at transistor forming regions in correspondence with desired transistor characteristics.

CONSTITUTION: The thickness of an epitaxial layer 3 at each transistor forming region is made different in correspondence with the characteristics of the desired transistor. For example, an N^+ type embedded layer 2 is formed on a P-type single crystal silicon substrate 1. Then, an N^- type epitaxial layer 3 is formed. Thereafter, a silicon nitride film 4 is formed on the entire surface. The silicon nitride film 4 at the surface of a part such as a memory cell part MC, where the epitaxial layer is made thin, is selectively removed. Then, thermal oxidation is performed, and an silicon oxide film 5 is formed. Thereafter, the silicon oxide film 5 on the surface of the memory cell part MC is selectively removed. Thus, the epitaxial layer 3, which has the different thicknesses at the memory part MC and a peripheral circuit part PR, is formed. On this epitaxial layer 3, transistors, which have the different distances between the base regions and the N^+ type embedded layer 2, are formed.

- Dünner durch
thermi. Oxidation
+
selekt. Entfernung des
Oxidschicht